



# Industrial Carbon Management Strategy for Europe

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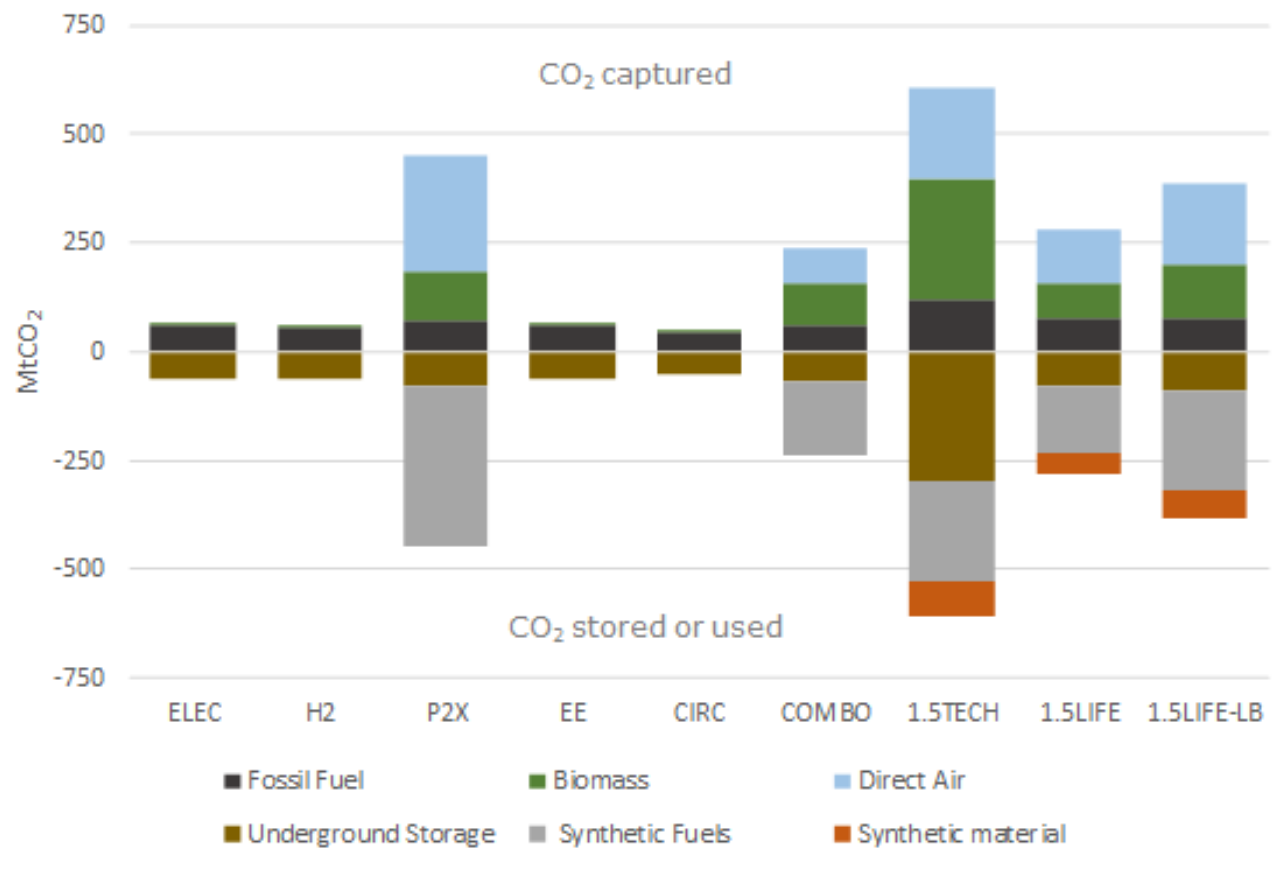
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European Commission

2007



# Green Deal modelling reality



- Hard-to-abate sectors
- Carbon removals
- Bridge to H2 market
- Power sector
- Fuels and other products

Source: Scenario Analysis Results for CCUS, Vision for a Clean Planet by 2050

# Driving the Strategy

- Existing framework and projects
- Studies on CO<sub>2</sub> transport and storage infrastructure
- Public consultation – June-August 2023
- CCUS Forum – regular meetings
- Net Zero Industry Act negotiations

## Legislation in place

- **EU ETS** – carbon price
- **Sustainable taxonomy** includes CCS
- **CCS Directive** - ensures CCS is done safely
- **CCU fuels** are encouraged through the **Renewable Energy Directive**
- **Trans-European Energy Networks** – supports investment in CO<sub>2</sub> pipelines and storage
- EU **‘carbon removal certificates’** framework

# Innovation Fund

**Kairos-at-C** - CO<sub>2</sub> capture from hydrogen, ammonia and ethylene oxide production

**K6** - CO<sub>2</sub> capture at cement plant

**BECCS Stockholm** - bio-energy CO<sub>2</sub> capture at a combined heat and power plant

**SHARC** - Green hydrogen and blue hydrogen production



# Innovation Fund

**Carbon2Business** – oxy-fuel CO<sub>2</sub> capture for methanol production (Germany)

**AIR** - Methanol production from renewable H<sub>2</sub> and carbon capture (Sweden)

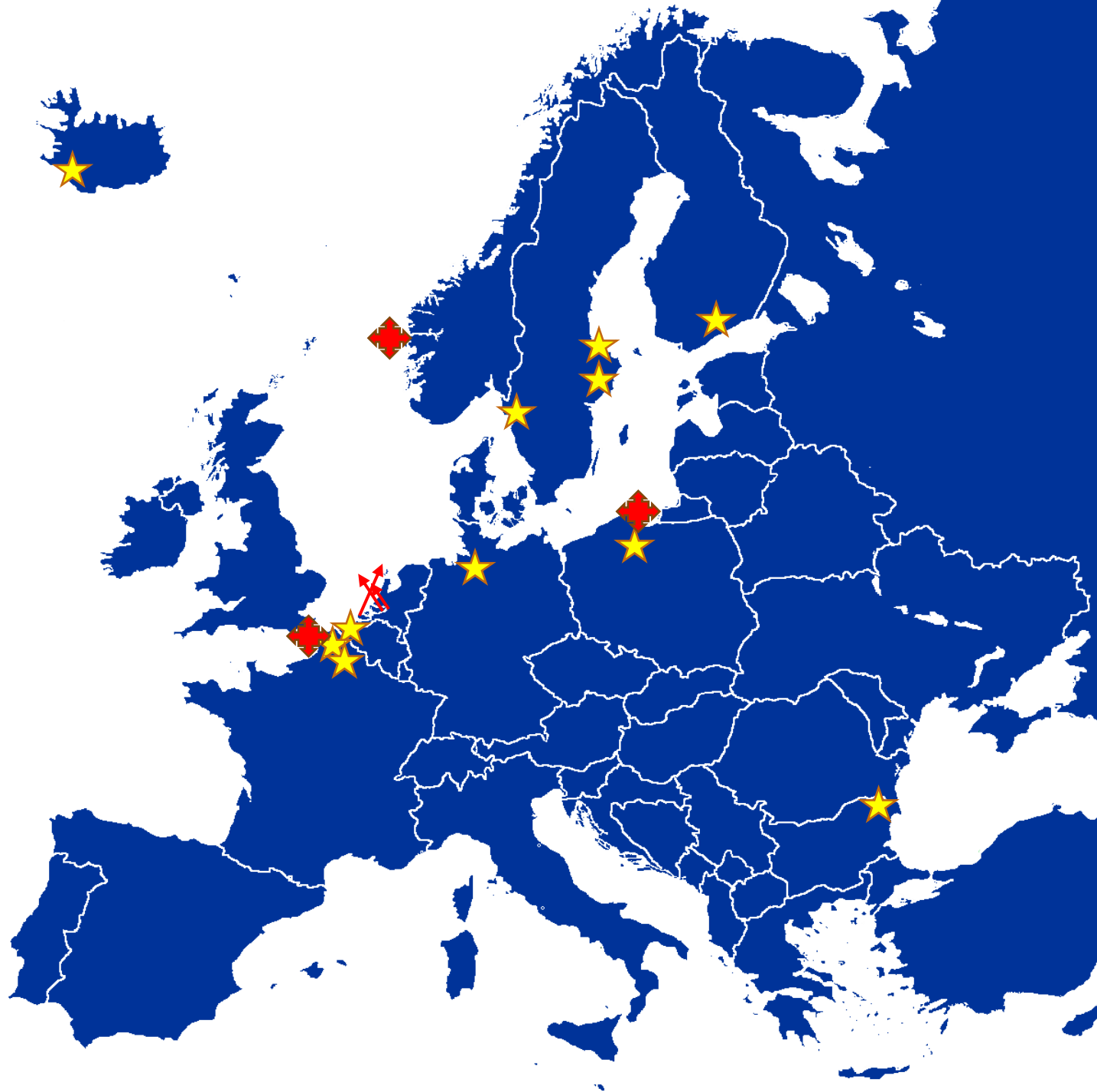
**HySkies** - Sustainable Aviation Fuel from RES H<sub>2</sub> and CCU (Sweden)

**Coda Terminal** - CO<sub>2</sub> mineral storage hub in onshore basalt formation (Iceland)

**ANRAV** - Oxy-fuel in cement production (Bulgaria)

**GO4ECOPLANET** - Cryocap CO<sub>2</sub> capture in cement (Poland)

**CalCC** - CO<sub>2</sub> capture in lime production (France)



# Projects of Common Interest

**CO2 TransPorts** - large-scale capture, transport and storage of CO<sub>2</sub> from Rotterdam, Antwerp and the North Sea Port

**Athos** - CO<sub>2</sub> from industrial areas in NL

**Aramis** - CO<sub>2</sub> from industrial areas in NL

**Northern lights** - Commercial CO<sub>2</sub> cross-border transport connection from EU countries to NO

**Dartagnan** - Multimodal HUB in Dunkirk

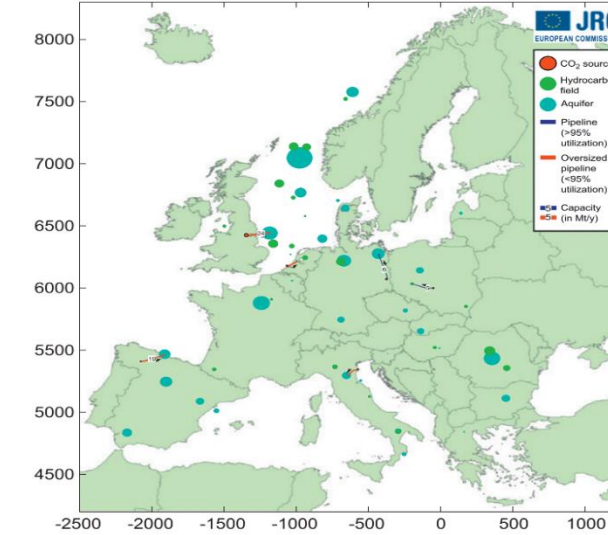
**EU CCS Interconnector** - CO<sub>2</sub> from industrial area around Gdansk PL



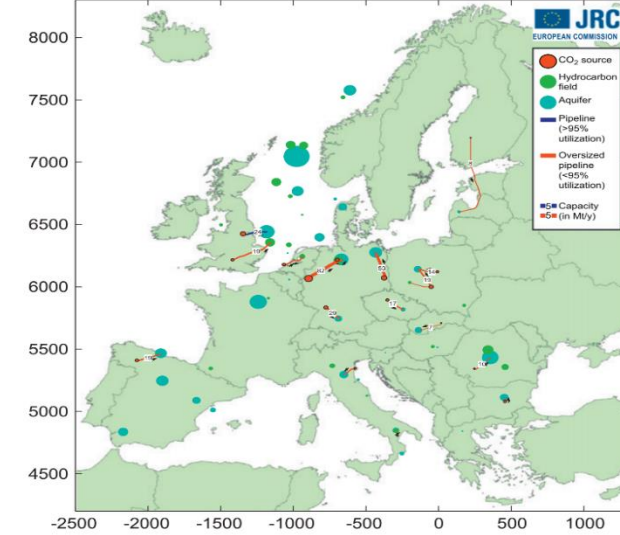
# CO<sub>2</sub> backbone

- Identification and clustering of CO<sub>2</sub> sources and sinks
- Scenarios on evolution of emission sources and storage capacities
- Routing of pipelines
- Network evolution over time

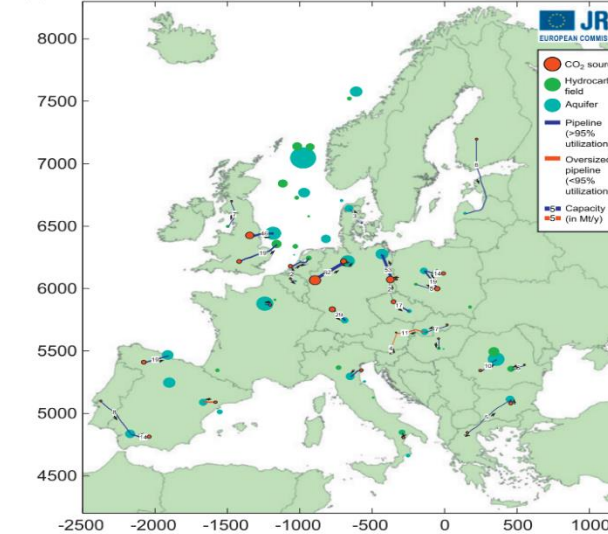
(a) YEAR 2020 - 897km network - 0.9 billion EUR cumulative investment



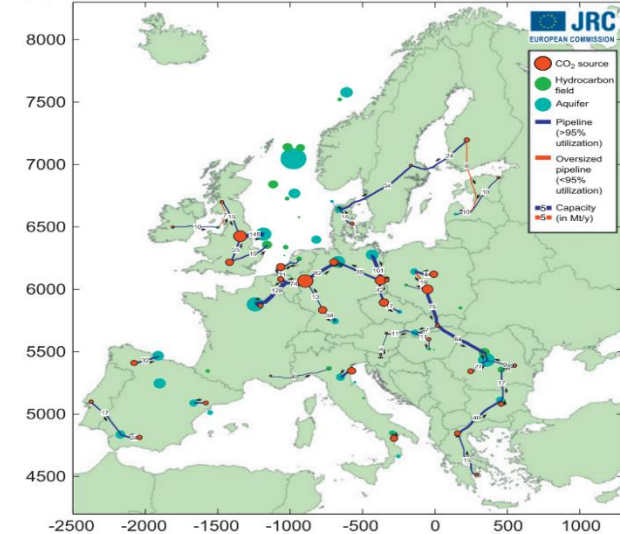
(b) YEAR 2025 - 3216km network - 3.5 billion EUR cumulative investment



(c) YEAR 2030 - 5551km network - 5.4 billion EUR cumulative investment



(d) YEAR 2050 - 11276km network - 15.6 billion EUR cumulative investment



# CO<sub>2</sub> transport regulation

- Open access
- Long-term planning
- Business models
- Regulatory oversight
- Common standards
- Unbundling
- Lessons from n. gas and H<sub>2</sub>
- Lessons from other countries



[https://energy.ec.europa.eu/publications/eu-regulation-development-market-co2-transport-and-storage\\_en](https://energy.ec.europa.eu/publications/eu-regulation-development-market-co2-transport-and-storage_en)

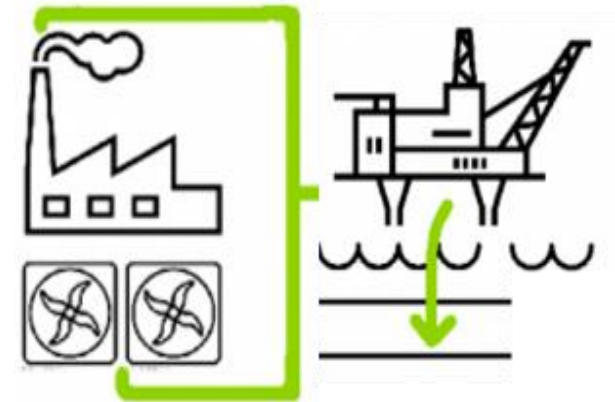
# Stakeholder dialogue

- CCUS Forum
- Open Public Consultation



# CO<sub>2</sub> storage obligation for the EU – Net Zero Industry Act

- **EU-wide objective to achieve an annual CO<sub>2</sub> storage capacity of 50 million tonnes by 2030 (EOR/EGR excluded)**
- Oil and gas producers to provide an individual contribution for reaching the target
- Contribution based on share of overall EU oil and gas production (2020-23)
- Target can be met using own assets and cooperation
- When NZIA becomes EEA relevant – target will be revised





# Possible elements of the Strategy

- Storage capacity development
- Network regulation and planning needs
- Common CO<sub>2</sub> standards/specs
- Support scheme/s and de-risking
- What kind & how much CCU and carbon removals
- Role of industry in CCS/CCU deployment
- Carbon management value chain MRV
- What international co-operation on carbon management



# Milestones

- Public consultation – deadline for feedback – 31 August
- CCUS Forum process – ongoing
- CCUS Forum plenary - November
- NZIA – negotiations ongoing
- Strategy published – 4Q

# Thank you!



#CCUSForum  
#CarbonManagementStrategy